

**CA9176      DISTRIBUTED SYSTEMS**

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**UNIT I      COMMUNICATION IN DISTRIBUTED ENVIRONMENT**

**8**

Introduction – Various Paradigms in Distributed Applications – Remote Procedure Call – Remote Object Invocation – Message-Oriented Communication – Unicasting, Multicasting and Broadcasting – Group Communication.

**UNIT II      DISTRIBUTED OPERATING SYSTEMS**

**12**

Issues in Distributed Operating System – Threads in Distributed Systems – Clock Synchronization – Causal Ordering – Global States – Election Algorithms – Distributed Mutual Exclusion – Distributed Transactions – Distributed Deadlock – Agreement Protocols .

**UNIT III      DISTRIBUTED RESOURCE MANAGEMENT**

**10**

Distributed Shared Memory – Data-Centric Consistency Models – Client-Centric Consistency Models – Ivy – Munin – Distributed Scheduling – Distributed File Systems – Sun NFS.

**UNIT IV      FAULT TOLERANCE AND CONSENSUS**

**7**

Introduction to Fault Tolerance – Distributed Commit Protocols – Byzantine Fault Tolerance – Impossibilities in Fault Tolerance.

**UNIT V      CASE STUDIES**

**8**

Distributed Object-Based System – CORBA – COM+ – Distributed Coordination-Based System – JINI.

**Total= 45**

**REFERENCES:**

1. George Coulouris, Jean Dollimore, Tim Kindberg, "Distributed Systems Concepts and Design", Third Edition, Pearson Education Asia, 2002.
2. Hagit Attiya and Jennifer Welch, "Distributed Computing: Fundamentals, Simulations and Advanced Topics", Wiley, 2004.
3. Mukesh Singhal, "Advanced Concepts In Operating Systems", McGrawHill Series in Computer Science, 1994.
4. A.S.Tanenbaum, M.Van Steen, "Distributed Systems", Pearson Education, 2004.
5. M.L.Liu, "Distributed Computing Principles and Applications", Pearson Addison Wesley, 2004.